

REMARKS

The specification is amended at page 14 to designate the endcone with reference numeral 88, to avoid confusion with gap 85 in Fig. 19 et al., which numeral 88 has also been added to Figs. 9, 10, 11, 15, 16, 17, 18, and 27. Page 14 has also been amended to refer to endcone assemblies 86 and endplate 82 in the drawings.

Pages 15 and 17 have been amended to delete reference numeral 51' and provide consistency in referring to segmented ridges 31' in Fig. 26. A reference numeral to annular area 73 is corrected.

Claim 1 is amended to more particularly point out that the claimed catalytic converter comprises a ridge, a feature originally in claim 4, now cancelled, and shown, for example, in Fig. 10. The amended claim clarifies that the ridge is spaced apart from the first and second lips and has an outer diameter greater than the outer surface diameter. The claim is further amended to call for a second mat support material, a feature originally in claim 8, now cancelled, and shown, for example, in Fig. 10; and that the first and second materials are spaced apart by a gap between the ridge and the shell, a feature originally in claim 14, now cancelled, and shown, for example in Fig. 10.

Claims 5, 6, 13, and 16 are amended to call out a ridge, consistent with the antecedent in claim 1, upon which they depend. Claim 12 is amended to clarify that the claim refers to the shell in claim 11, upon which it depends.

Claim 9 is amended to correct dependency and clarify that the U-shaped attachment is attached to the shell within the gap between the mat materials, as shown, for example, in Fig. 16. Claim 10 is amended for consistency with claims 1 and 9, upon which it depends.

Objection to Specification

An erroneous reference numeral was objected to at page 17 and has been corrected. Accordingly, it is requested that the objection be withdrawn.

AMENDMENTS TO THE DRAWINGS

Please substitute the enclosed sheets 1/14 to 14/14, labeled "Replacement Sheets," for the corresponding sheets presently in the case. Applicants appreciate the Examiner's assistance in identifying the minor errors in the figures.

It is noted that the Replacement Sheets provide a complete set of the drawings and avoid confusion with the original drawings and the proposed amended drawings submitted in the Preliminary Amendment on May 9, 2001.

In response to objection to the drawings:

Fig. 3 is amended to extend lead lines for lips 12 and 18;

Fig. 4 is amended to show first lip 12;

Figs. 9, 10, 11, 15, 16, 17, 18, and 27 are amended to include reference numeral 88 to the end cone;

In Fig. 12, gas outlet 22 is corrected;

In Figs. 19 and 22, the lead lines for gaps 85 and 85' are corrected.

It is believed that the amendments to the drawings, together with the aforementioned amendments to the specification, address all objections raised in the Office Action. Therefore, it is requested that the objections be withdrawn in view of the amendments to the figures and the remarks above.

Objections to Claims

In response to an objection, claim 12 has been amended to clarify that the claim refers to the shell in claim 11, upon which it depends. In view of the amendment, it is requested that the objection be withdrawn.

Claim Rejection under 35 USC § 112

Claim 10 was rejected under 35 USC § 112 as indefinite in reciting a U-shaped ring. The claim has been amended to point out the U-shaped attachment consistent with the antecedent in claim 9. Therefore, it is requested that the rejection be withdrawn.

Claim Rejection under 35 USC § 103

Claims 1-3, 5-7, 9-13, 15-16 and 18 were rejected under 35 U.S.C. § 103 as unpatentable over United States Patent No. 3,978,567, issued to Vroman in 1976, in view of United States Patent No. 5,980,837, issued to Umin et al. in 1999. Claim 17 is rejected under 35 U.S.C. § 103 as unpatentable over Vroman in view of United States Patent No. 4,350,664, issued to Gaysert in 1982.

Vroman describes a catalytic reactor 10 in Fig. 1 that includes a substrate 13 having grooves 17, see col. 3, line 46-48. The grooves are sized and shaped to receive ropes 18, col. 3, beginning at line 60. In contrast to the grooves in Vroman, the catalyst substrate in Applicants' catalytic converter comprises a ridge that extends from the outer surface, and mats disposed on opposite sides of the ridge and spaced apart to create a gap overlying the ridge. Vroman does not contemplate a substrate having a ridge, or a gap between mats at the ridge, and so does not suggest Applicants' invention.

Umin et al. is cited to show a conventional mat, but does not show a catalyst substrate comprising lips at the ends and a ridge therebetween, or mats spaced apart to create a gap at the ridge, and so does not make up the deficiencies of Vroman. Gaysert is cited to show a mat protection ring. However, Gaysert does not show first and second lips at the end of the catalyst carrier, with a ridge inbetween, and mats between the lips

and the ridge, and so also does not make up the deficiencies of Vroman. Thus, even if the references are combined, they do not point the practitioner to form a catalyst substrate having lips at the ends and a ridge in the middle, and to dispose mats about the outer surface, and space the mats apart at the ridge by a gap, so as to arrive at Applicants' invention.

Claim 1 is directed to Applicants' catalytic converter that includes a catalyst substrate. As called out in the claim, the catalyst substrate includes a first lip at a first end, a second lip at the second end, and a ridge spaced apart from the lips by the outer surface. The grooves in Vroman do not suggest ridges. Nor do Umin et al. or Gaysert show a substrate having lips and a ridge, as recited in the claim. The claim also calls for first and second mat support materials disposed about the outer surface between the lips and the ridge, and spaced apart at the ridge to form a gap. Even if the ropes in Vroman were replaced by the mat in Umin et al, and held by the ring in Gaysert, the references still fail to show the mats disposed between the lips and the ridge and spaced apart at the ridge by a gap. Thus, the references, even when combined, fail to suggest Applicants' catalytic converter in claim 1.

Claims 2-3, 5-7, 9-13, and 15-18 are dependent upon claim 1, and not suggested by the combination of references for the reasons set forth with regard to that claim, but include additional features preferred in the practice of Applicants' invention.

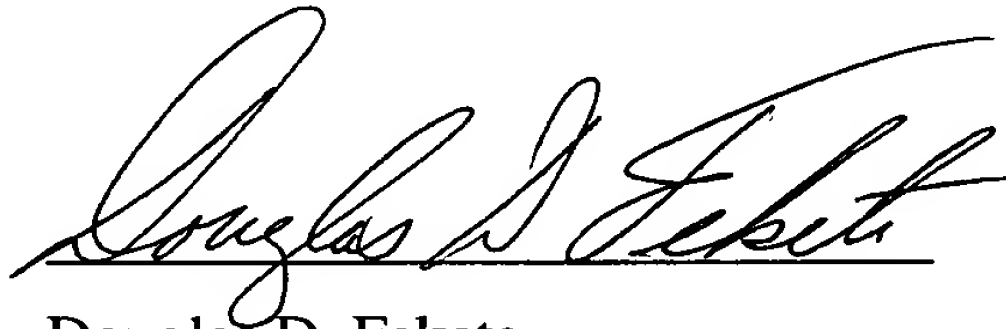
Accordingly, it is respectfully requested that the rejection of the claims based upon Vroman and the secondary references be reconsidered and withdrawn in view of the amendments and remarks herein, and that the claims be allowed.

Conclusion

It is believed, in view of the amendments and remarks herein, that all grounds of rejection of the claims have been addressed and overcome, and that all claims are in condition for allowance. If it would further prosecution of the application, the Examiner is urged to contact the undersigned at the phone number provided.

The Commissioner is hereby authorized to charge any fees associated with this communication to Deposit Account No. 50-0831.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Douglas D. Fekete", written over a horizontal line.

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